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Soil
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FLOOD PLAIN MANAGEMENT

**A Study Of South Fork
Shenandoah Tributaries**

Rockingham County, Virginia

APPENDIX IV

NAKED CREEK

August 1983

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FOREWORD

The main report on the Flood Plain Management Study of South Fork Shenandoah River Tributaries provides information and data needed for use by administrators and the general public. Discussion of findings and recommendations relevant to the total study area are included.

Eight appendixes or technical reports include specifics on each tributary as listed below. Tables, flood profiles and area-flooded photomaps provide information for user agencies and individuals to make technical decisions and to comply with regulations related to the use of flood plains.

Appendix I	Stony Run
Appendix II	Quail Run - Boone Run
Appendix III	Cub Run - Big Run
Appendix IV	Naked Creek
Appendix V	Dry Run
Appendix VI	Hawksbill Creek
Appendix VII	Mill Creek - Congers Creek
Appendix VIII	Pleasant Run

We thank those who contributed their active interest, cooperation, and information to this project.

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Naked Creek

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APPENDIX IV
South Fork Shenandoah River Tributaries
FLOOD PLAIN MANAGEMENT STUDY
Technical Report
NAKED CREEK
Rockingham County, Virginia

INTRODUCTION

This technical report on Naked Creek is one of eight such appendixes to the Flood Plain Management Study on South Fork Shenandoah River Tributaries. The main report includes items such as authorities, responsibilities, scope, procedures, description, recommendations, and data common to the tributaries and relevant to the total project.

The first sections of this appendix present general information pertinent to the study on Naked Creek. Included are brief discussions of natural values, alternate solutions to the flood problems, and suggested items for the flood plain management program. The last section contains data and exhibits needed to make technical decisions for regulation and use of the flood plain.

DESCRIPTION OF STUDY AREA

Upstream Drainage Area

The Naked Creek drainage area comprises 44.8 square miles above its mouth at the South Fork Shenandoah River (see Figure 1). The Shenandoah River is a subbasin of the Potomac River which is in the Mid-Atlantic Region as designated by the Water Resources Council. The USGS Hydrologic Unit code number in the area is 02070005. The watershed is in the Appalachian Ridges and Valleys physiographic province. Soils in the upper portion of the drainage area are formed mainly in residuum of sandstone, shale, or greenstone and colluvial material on mountain slopes. Drall-Laidig is the predominant soil series. Soils in most of the watershed are formed in alluvial and colluvial material on river terraces and uplands. The predominant soil series is Monongahela-Unison-Cotaco. Upland land use is about 1 percent rural residential, farmstead, and other built-up areas. The remainder includes about 74 percent woodland, 1 percent cropland, and 24 percent pasture, meadow and idle brushland.

Flood Plain

The study area includes the flood plain along 8 miles of Naked Creek and 1.6 miles of South Branch. It extends from the junction at South Fork Shenandoah River up to the boundary of the Shenandoah National Park.

Land use in the flood plain is about 20 percent pasture, hay and meadow, 15 percent cropland, 35 percent idle brushland, 15 percent woods and 15 percent miscellaneous. About 250 bridges, dwellings, farm buildings and other structures would be subject to varying amounts of damage during extreme floods.

Natural and Beneficial Flood Plain Values

Naked Creek supports native or "put and take" trout populations, primarily in the headwaters. This stream is mostly in wooded cover which provides good habitat for fish and wildlife. Practices that maintain this forest cover would be the best way to preserve this high natural value.

FLOOD HISTORY

Flooding on Naked Creek usually results from intense thunderstorm activity. Excess rainfall concentrates quickly on the steep slopes; flood stages rise rapidly and fall just as quickly. Limited flooding and damage may occur several times each year. On average, moderately severe damages are experienced at three to five year intervals. No records or recollections were noted on unusually severe floods on Naked Creek. Average annual flood damages were estimated at around \$200,000.

FLOOD POTENTIAL

Present Conditions

Extreme floods 100 -year to 500 year would inundate about 1100 acres of primarily agricultural land (see Table below). Extensive damage would be done to the land, crops, fences, farm roads, buildings and machinery. Less extensive but more critical damage would accrue to dwellings and businesses. Velocities would average about four feet per second in the flood plain and exceed six feet per second in some reaches. Out-of-bank stages would range from about three to ten feet. Duration of flooding would seldom exceed six hours except during storms of intense and prolonged rainfall.

The acres tabulated below are used primarily for pasture and other agricultural uses. Only about 10 percent is occupied by structure sites, but varying amounts of damage would occur to 102 dwellings, 29 trailers, 95 farm buildings, 7 commercial structures and 10 bridges.

<u>Type of Damage</u>	<u>Acres Inundated</u>	
	<u>100-year flood</u>	<u>500-year flood</u>
Agricultural	420	450
Miscellaneous	<u>640</u>	<u>690</u>
TOTAL	1060	1140

Limitations on Use of Data. The flood elevations given in this report should be considered as minimum elevations. During floods, uprooted trees and other debris may collect on bridges and culverts and clog the channels. Such obstructions increase the depth and extent of flooding. Analyses were made without showing the effects of potential obstructions. Also, extremely rare events such as dam failure and climatic changes were not analyzed.

Future Conditions

The hydrologic conditions in the upstream areas are expected to improve as farmers and foresters continue to apply good management and conservation practices. This improvement is expected to reduce runoff approximately to the extent that additional development will increase runoff. Therefore, the flood hazard and damage potential is not expected to change significantly in the next 10 to 15 years.

FLOOD PLAIN MANAGEMENT

The main report includes a discussion of existing programs, current regulations, availability of flood insurance, recommendations, and related items relevant to the total study. The items discussed below relate only to Naked Creek.

Floodway. The data for a "first trial" or computed floodway is filed with the basic data for Naked Creek. The results indicate that hazardous conditions of depth and/or velocity prevail at current 100-year flood levels in all reaches, and that generally no additional encroachment should be allowed. The data can be used as a basis for further study of local measures, but it is suggested that no continuous or extensive floodway be considered.

Recommendations

In preparation of their comprehensive flood management program, the local sponsors should implement the following recommendations on Naked Creek.

-- Monitor future developments in the watershed to assure that regulations are followed so as not to increase the flood hazard;

- Assist landowners in studies of local protection measures to reduce stream-bank erosion and the spread of floodwaters; and
- Encourage the re-establishment of natural vegetation in the flood plain to restore the fish and wildlife habitat.
- Ask an appropriate agency to conduct a feasibility study for a flood protection project.

Evaluation of Potential

A brief study of contour maps indicates few good sites for flood control dams. Also the damages per stream mile are too low to economically justify extensive diking. Channelization does not seem justifiable either economically or environmentally.

Flood warning systems are usually not suitable for small watersheds, due to the rapid rise of floodwaters.

Preliminary estimates indicated that floodproofing may be feasible. A house by house survey of needed floodproofing measures should be conducted. However, this alternative will not eliminate the danger of loss of life due to flooded roads and yards. The combination of small dams and floodproofing may prove to be the solution to flooding problems on Naked Creek.

TECHNICAL DATA AND EXHIBITS

This section provides the data and exhibits needed by user agencies and individuals to make technical decisions and to comply with regulations on use of the flood plain on Naked Creek.

The index map shows the area covered by the individual photomaps. Flood hazard photomaps show the area inundated by the 100 and 500-year floods. Where only one line is shown, there is no significant difference in the boundaries of the two flood areas. These photomaps should only be used to determine approximate flood elevations; they are based on semicontrolled mosaics and the boundaries shown may vary from the location on the ground.

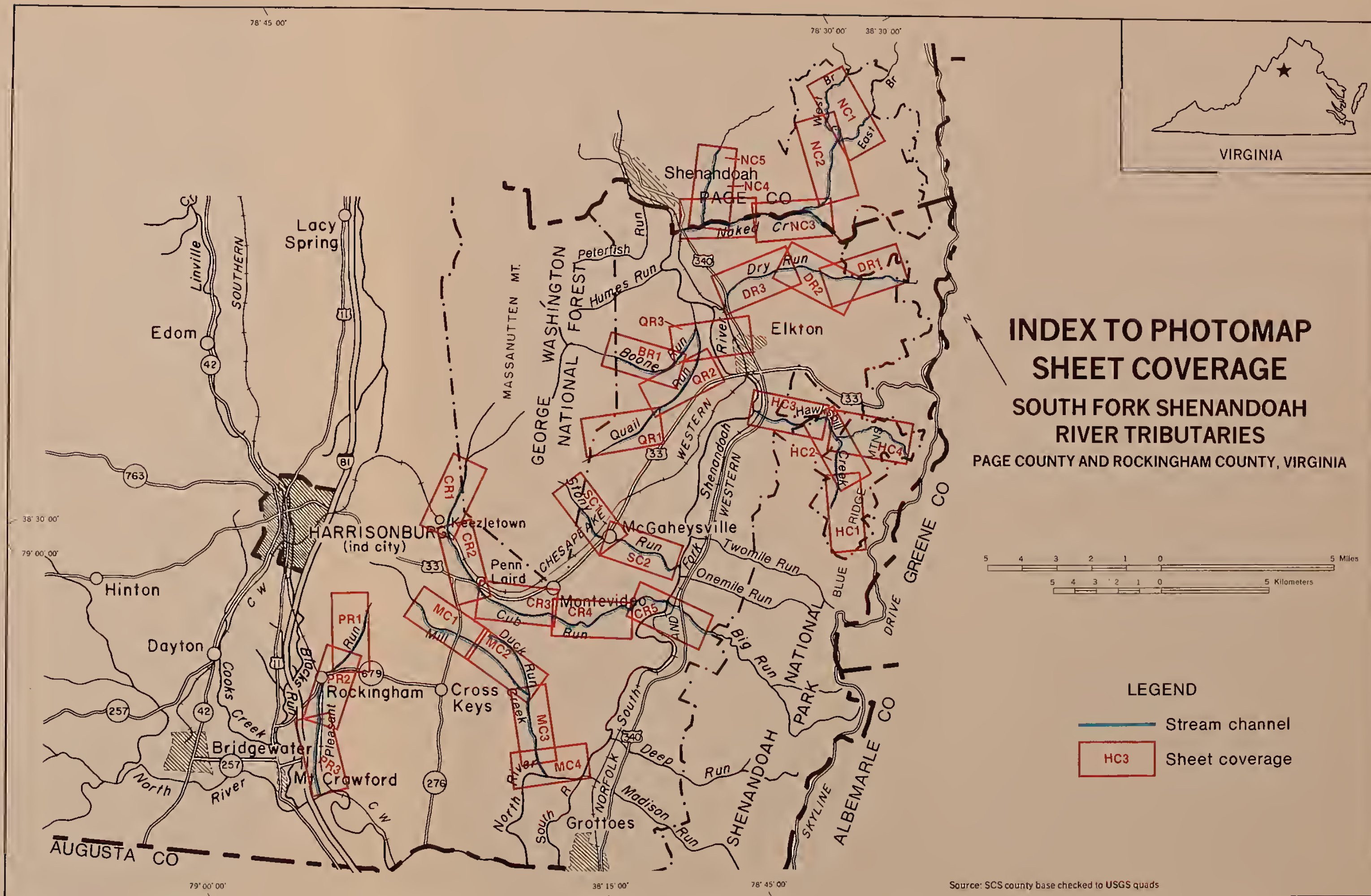
Flood profile plates provide elevations of the 10, 50, 100 and 500-year floods at any location along the length of the streams. The elevations and discharges of the 10, 25, 50, 100 and 500-year flood at each surveyed cross section are given in Table NC-1. Sample cross sections illustrated how the flood area boundaries were located. Table SR-2 provides the description and elevation of benchmarks which are located on the photomaps.

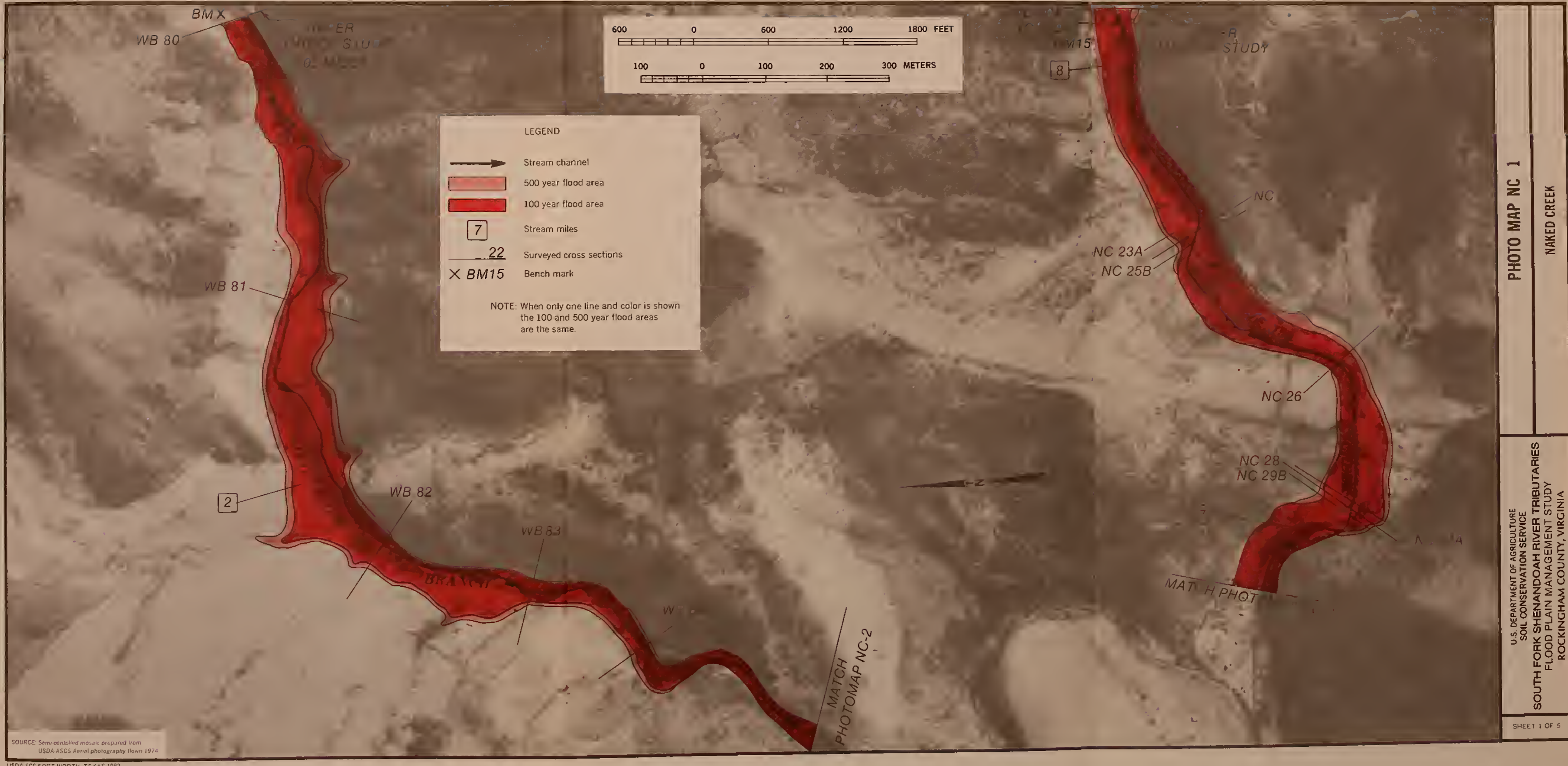
Table NC-1 can be used to locate flood elevations on the ground at surveyed cross sections.

The photomaps, flood profiles and bench mark data can be used to locate flood elevations between surveyed cross sections, as follows:

1. On the appropriate photomap find the point on the stream where the flood line is to be located; then scale the distance along the stream to the nearest cross section.
2. On the appropriate flood profile sheet, scale the distance determined in Step 1 from the cross section back to the original stream location, and read the elevation of the desired flood frequency line.
3. Transfer the elevation determined in Step 2 to the ground from the nearest established benchmark.

A glossary, bibliography and discussion of technical procedures are included in the main report for this study. The basic data is on file in the office of the USDA Soil Conservation Service, Richmond, Virginia 23240.





LEGEND

→ Stream channel

500 year flood area

100 year flood area

7 Stream miles

22 Surveved cross sections

X BM15 Bench mark

NOTE: When only one line and color is shown the 100 and 500 year flood areas are the same.

SOURCE: Semi-controlled mosaic prepared from
USDA-ASCS Aerial photography flown 1974

USDA SCS-FORT WORTH, TEXAS 1983

PHOTO P.C.

JOLETT

WB 87A
WB 89B

NC 31

NC 32A

NC 35

NC 36


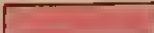




STATE ROUTE 607

WB 86

WB 85

MATCH
PHOTO MAP NC-1

LEGEND

-  Stream channel
-  500 year flood area
-  100 year flood area
-  Stream miles
-  Surveyed cross sections
-  Bench mark

NOTE: When only one line and color is shown
the 100 and 500 year flood areas
are the same.

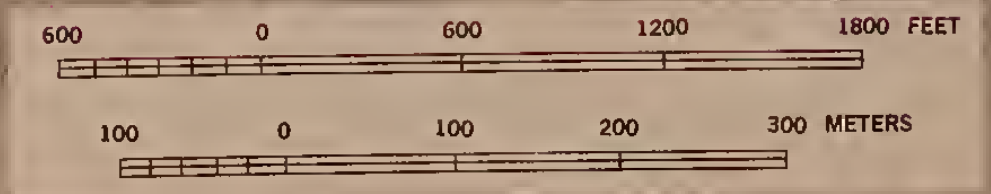


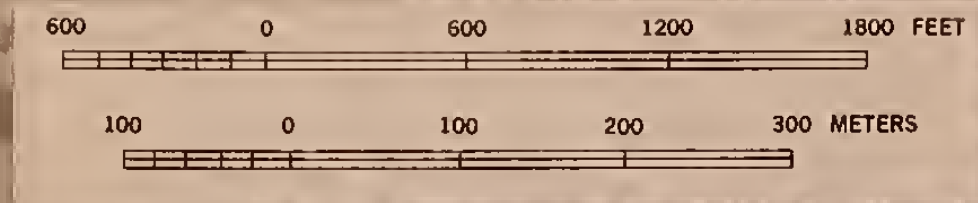
PHOTO MAP NC 2

NAKED CREEK

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOUTH FORK SHENANDOAH RIVER TRIBUTARIES
FLOOD PLAIN MANAGEMENT STUDY
ROCKINGHAM COUNTY, VIRGINIA

SHEET 2 OF 5

NOTE: NOT ENOUGH COVERAGE
TO REACH X-SEC.-70



LOWER
LIMIT OF STUDY

SB 71

SB 72

SB 73

SB 74

SB 75A

BM103

SB 77B

NC 41

NC 42

759

NC 44

NC 46

NC 43A

NC 45B

MATCH
PHOTO MAP NC-2

MATCH
PHOTO MAP NC-4

LEGEND

- Stream channel
- 500 year flood area
- 100 year flood area
- Stream miles
- 42 Surveyed cross sections
- BM30 Bench mark

NOTE: When only one line and color is shown
the 100 and 500 year flood areas
are the same.

SOURCE: Semi-controlled mosaic prepared from
USDA-ASCS Aerial photography flown 1974

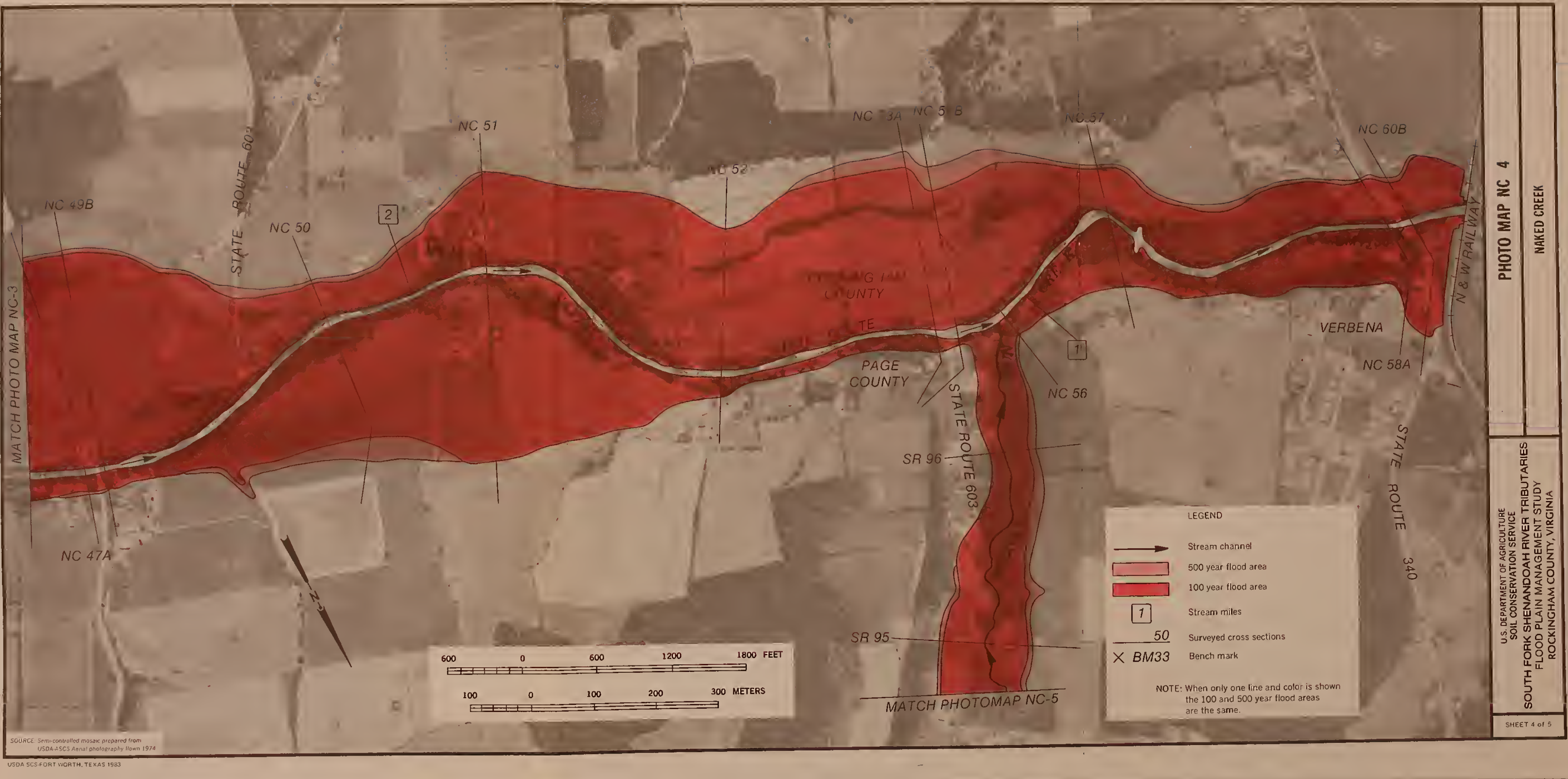
USDA-SCS-FORT WORTH, TEXAS 1983

PHOTO MAP NC 3

NAKED CREEK

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOUTH FORK SHENANDOAH RIVER TRIBUTARIES
FLOOD PLAIN MANAGEMENT STUDY
ROCKINGHAM COUNTY, VIRGINIA

SHEET 3 OF 5



SOURCE: Semi-controlled mosaic prepared from
USDA-ASCS Aerial photography flown 1974
USDA SCS-FORT WORTH, TEXAS 1983

PHOTO MAP NC 4

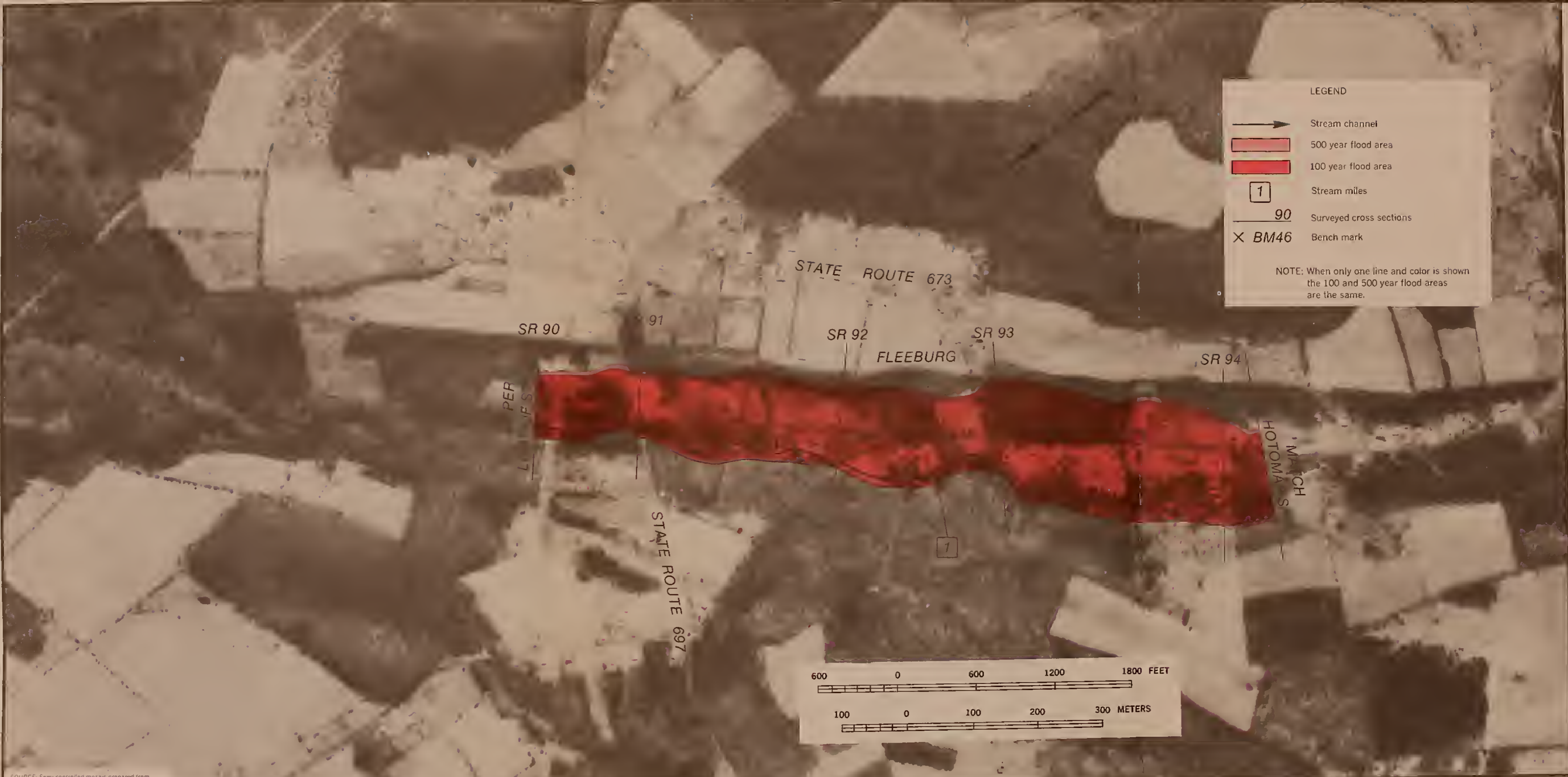
NAKED CREEK

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

**SOUTH FORK SHENANDOAH RIVER TRIBUTARIES
FLOOD PLAIN MANAGEMENT STUDY**

ROCKINGHAM COUNTY, VIRGINIA

SHEET 4 of 5



LEGEND

→ Stream channel

500 year flood area

100 year flood area

1 Stream miles

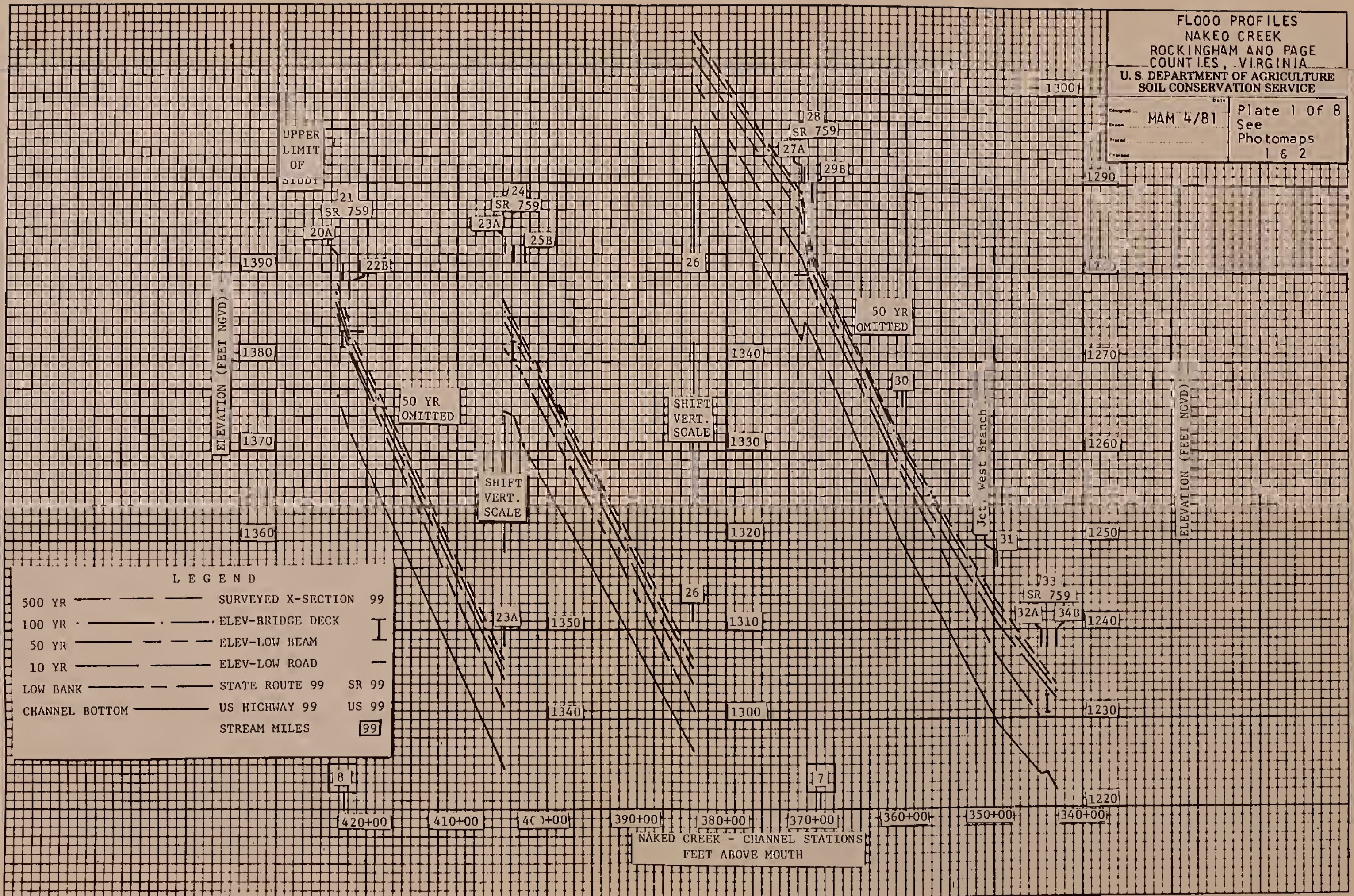
90 Surveyed cross sections

X BM46 Bench mark

NOTE: When only one line and color is shown the 100 and 500 year flood areas are the same.

FLOOD PROFILES
 NAKED CREEK
 ROCKINGHAM AND PAGE
 COUNTIES, VIRGINIA
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Date
 MAM 4/81
 Plate 1 of 8
 See
 Photomaps
 1 & 2

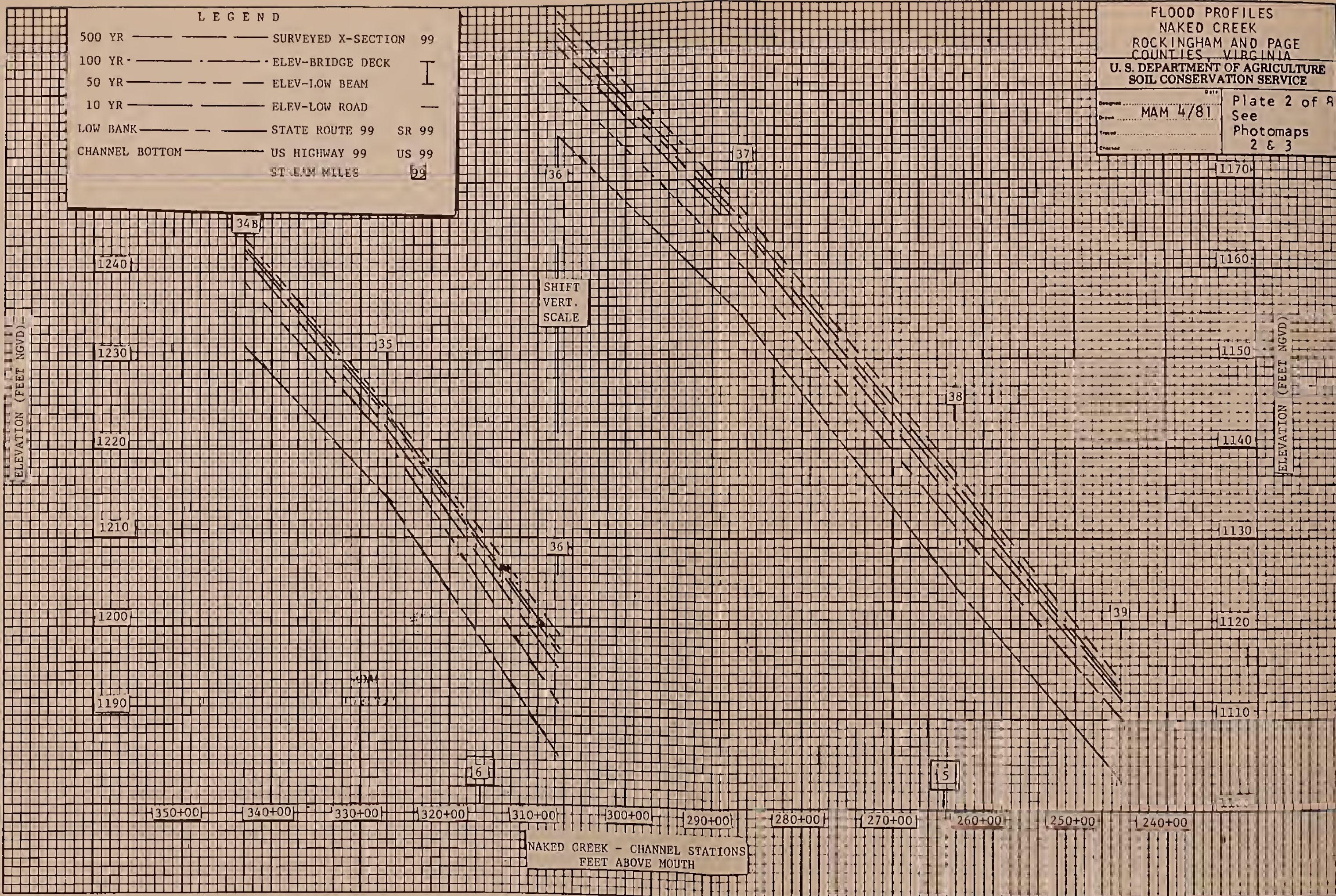


LEGEND

500 YR ——— SURVEYED X-SECTION 99
 100 YR ——— ELEV-BRIDGE DECK I
 50 YR ——— ELEV-LOW BEAM
 10 YR ——— ELEV-LOW ROAD —
 LOW BANK ——— STATE ROUTE 99 SR 99
 CHANNEL BOTTOM ——— US HIGHWAY 99 US 99
 STREAM MILES 99

FLOOD PROFILES
 NAKED CREEK
 ROCKINGHAM AND PAGE
 COUNTIES, VIRGINIA
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

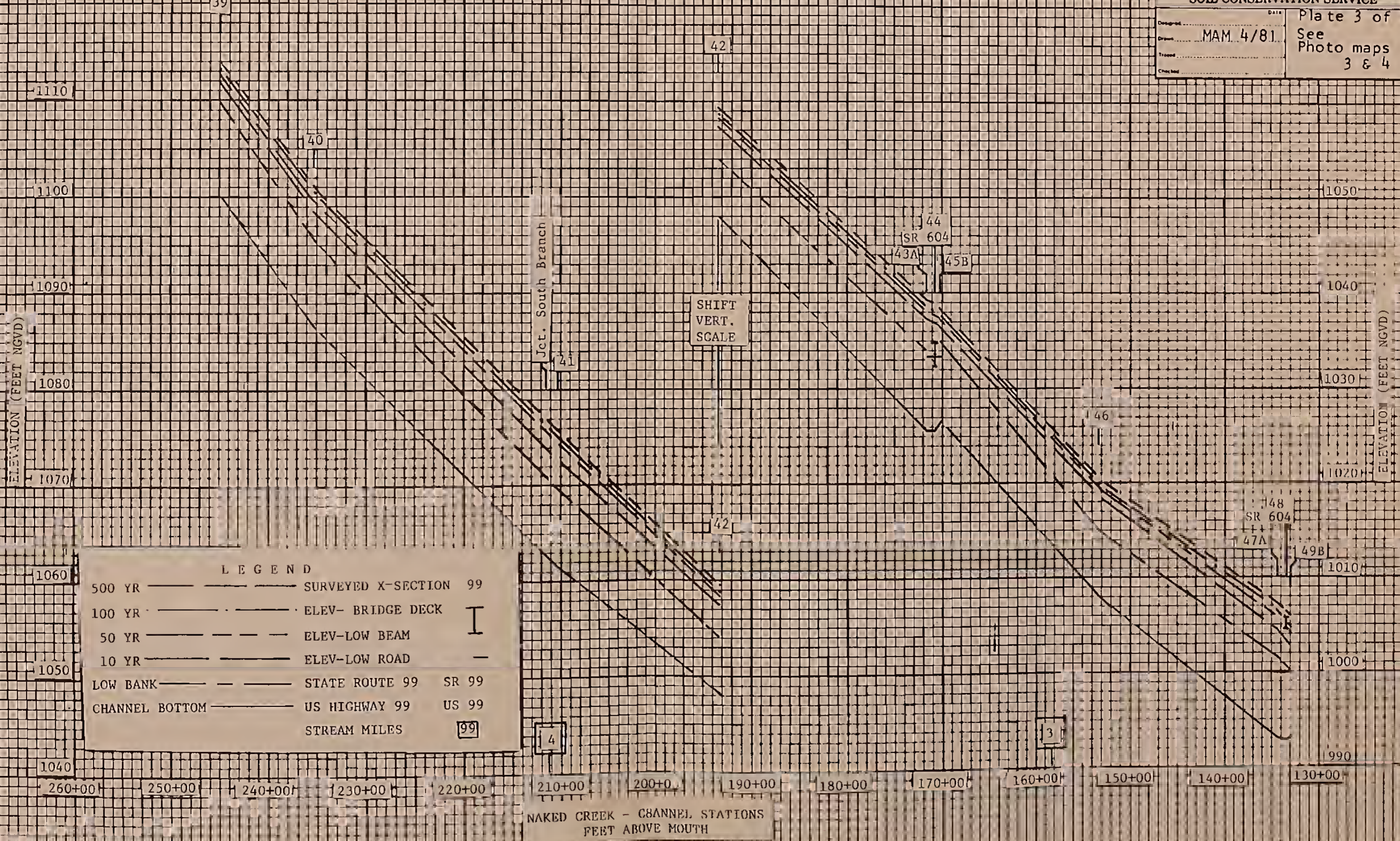
Designed: MAM 4/81
 Drawn: See
 Traced: Photomaps
 Checked: 2 & 3
 Plate 2 of 8



NAKED CREEK - CHANNEL STATIONS
 FEET ABOVE MOUTH

FLOOD PROFILES
NAKEO CREEK
ROCKINGHAM AND PAGE
COUNTIES, VIRGINIA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Plate 3 of 8
See Photo maps 3 & 4
Date: MAM 4/81
Designed: MAM 4/81
Drawn: MAM 4/81
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Checked: MAM 4/81



LEGEND

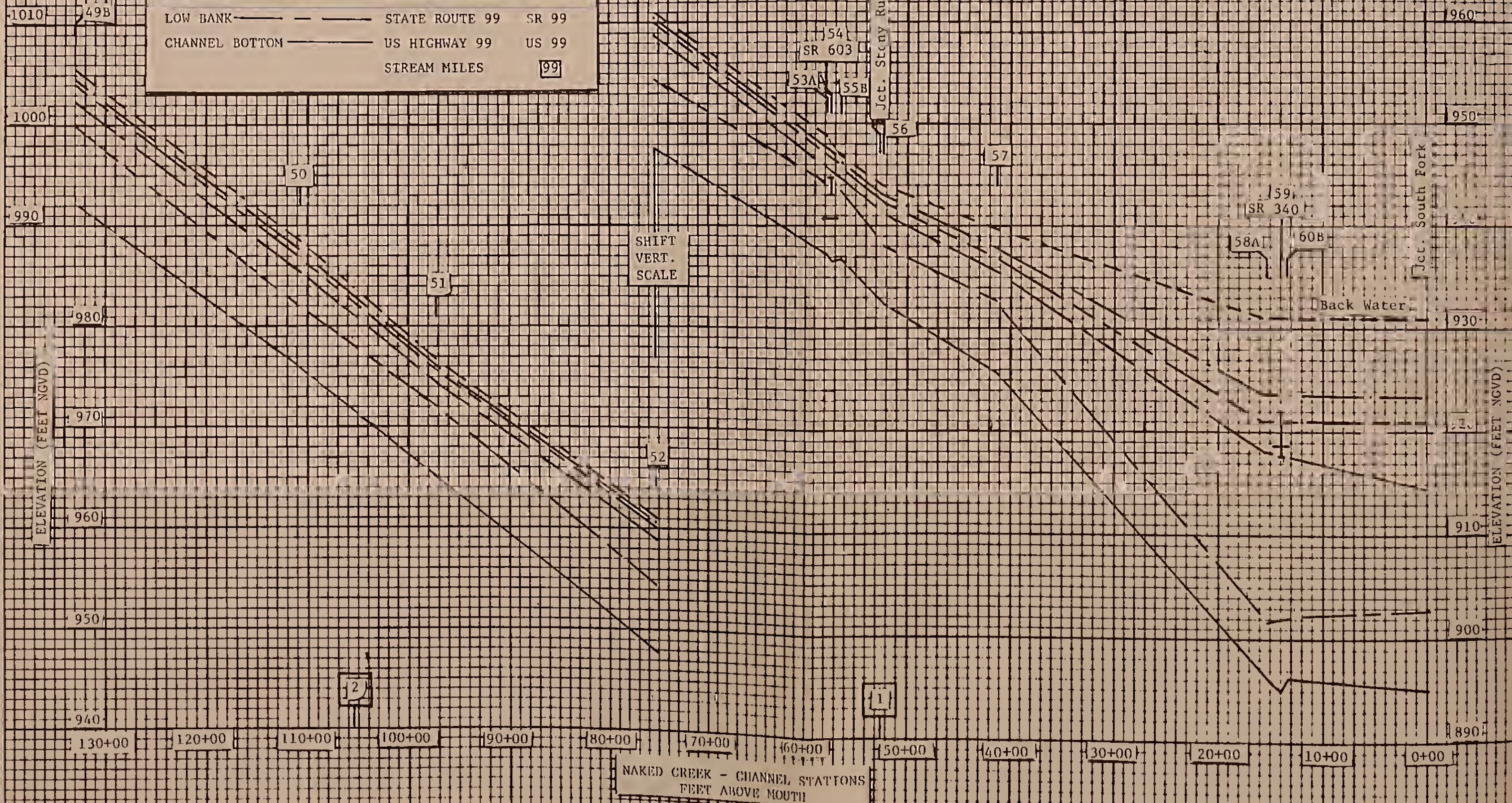
500 YR ——— SURVEYED X-SECTION 99
100 YR - - - - - ELEV- BRIDGE DECK
50 YR - - - - - ELEV-LOW BEAM
10 YR - - - - - ELEV-LOW ROAD
LOW BANK ——— STATE ROUTE 99 SR 99
CHANNEL BOTTOM ——— US HIGHWAY 99 US 99
STREAM MILES [99]

NAKEO CREEK - CHANNEL STATIONS
FEET ABOVE MOUTH

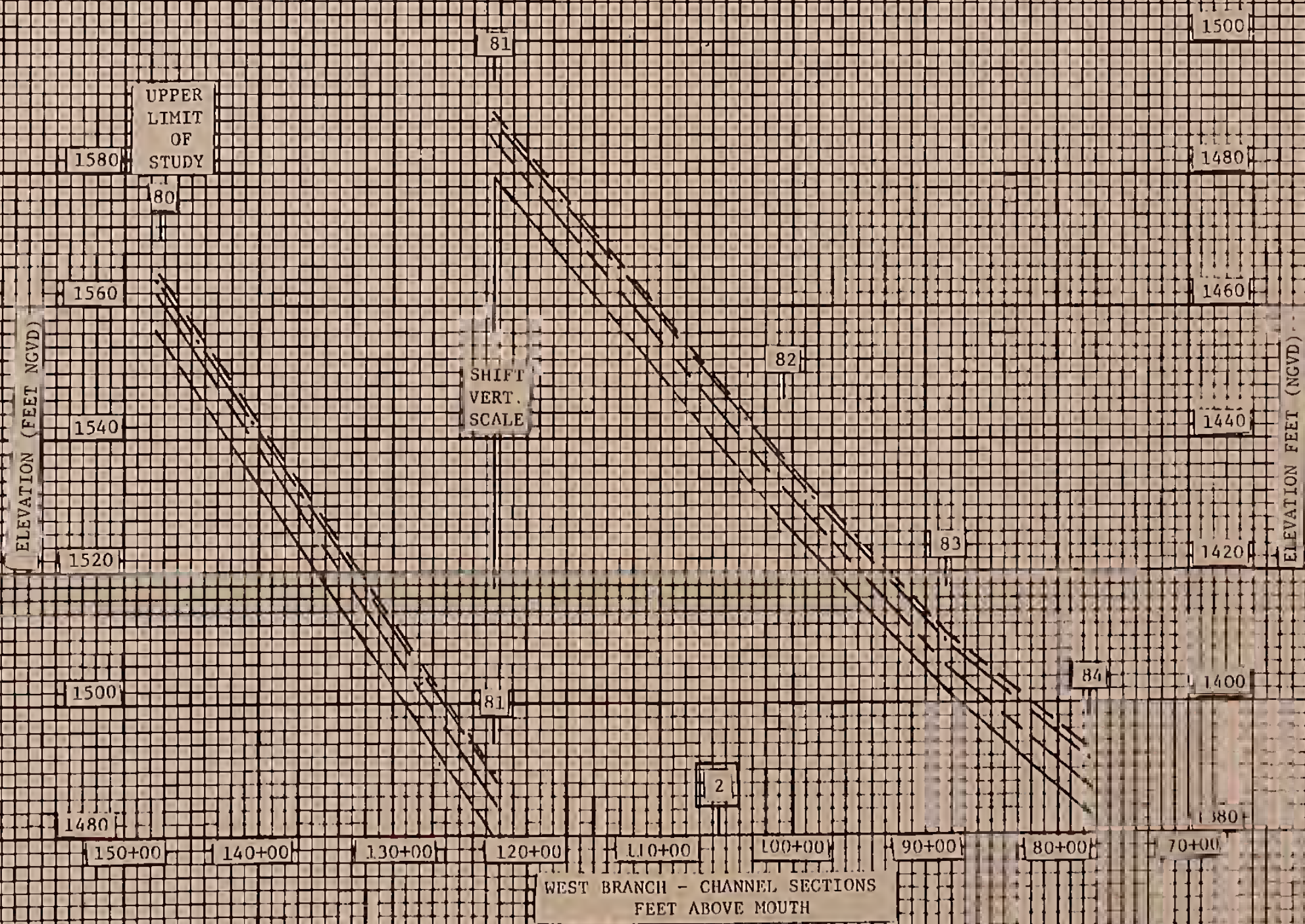
FLOOD PROFILES
NAKED CREEK
ROCKINGHAM AND PAGE
COUNTIES, VIRGINIA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed MAM 4/81 Plate 4 of 8
Drawn See
Traced Photomap 4
Checked

LEGEND			
500 YR	— — — — —	SURVEYED X-SECTION	99
100 YR	· · · · ·	ELEV- BRIDGE DECK	I
50 YR	- - - - -	ELEV-LOW BEAM	
10 YR	— — — — —	ELEV-LOW ROAD	—
LOW BANK	— — — — —	STATE ROUTE 99	SR 99
CHANNEL BOTTOM	— — — — —	US HIGHWAY 99	US 99
		STREAM MILES	99

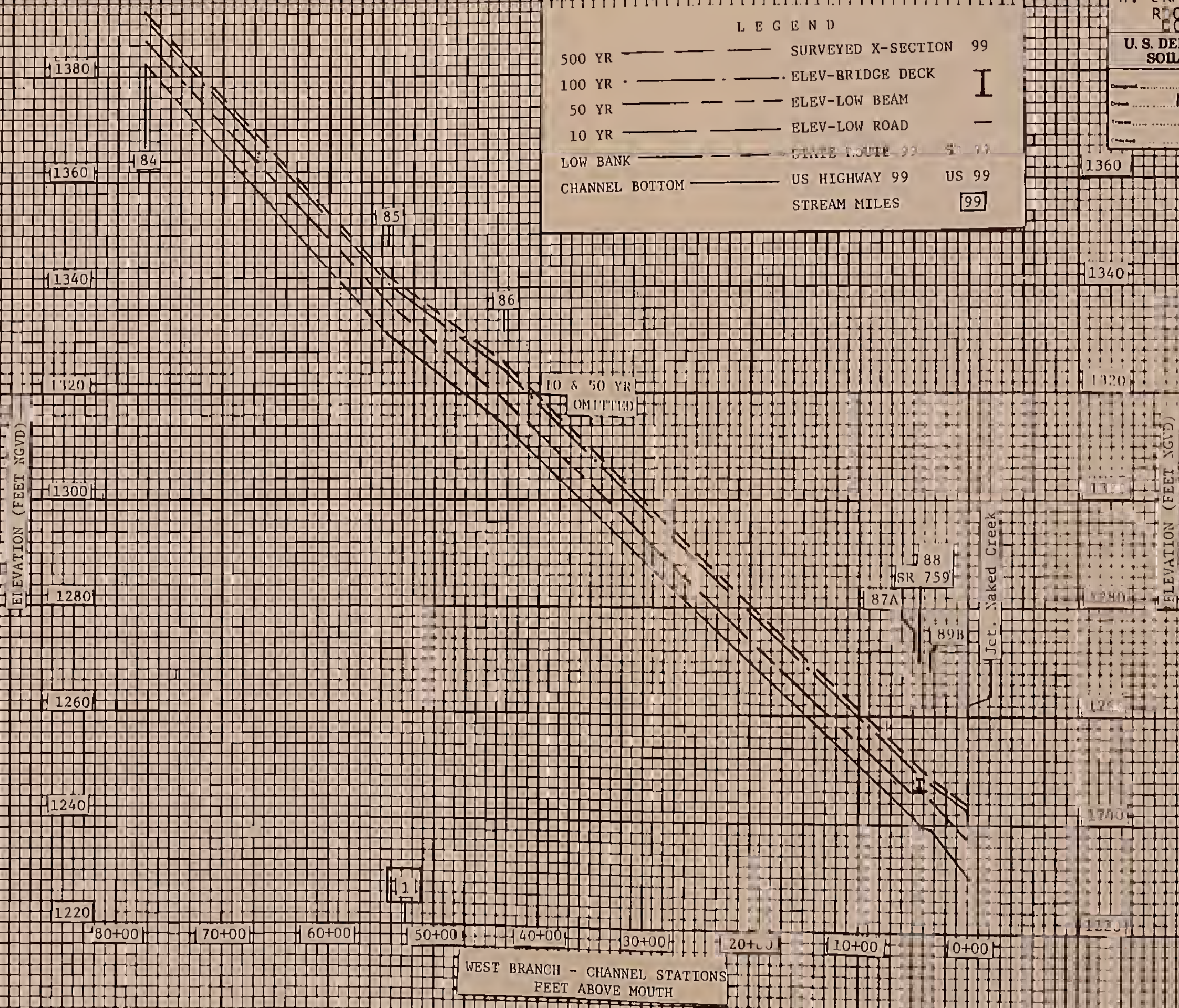


LEGEND				
500 YR	— — — — —	SURVEYED X-SECTION	99	
100 YR	— • — — — • —	ELEV-BRIDGE DECK		I
50 YR	— — — — —	ELEV-LOW BEAM		
10 YR	— — — — —	ELEV-LOW ROAD		—
LOW BANK	— — — — —	STATE ROUTE 99	SR 99	
CHANNEL BOTTOM	— — — — —	US HIGHWAY 99	US 99	
		STREAM MILES		99



LEGEND

500 YR	-----	SURVEYED X-SECTION	99
100 YR	-----	ELEV-BRIDGE DECK	I
50 YR	-----	ELEV-LOW BEAM	---
10 YR	-----	ELEV-LOW ROAD	---
LOW BANK	-----	STATE ROUTE 99	SR 99
CHANNEL BOTTOM	-----	US HIGHWAY 99	US 99
		STREAM MILES	99



WEST BRANCH - CHANNEL STATIONS
FEET ABOVE MOUTH

FLOOD PROFILES
S. BRANCH TRIB. - NAKED CR.
ROCKINGHAM AND PAGE
COUNTIES, VIRGINIA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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Date: Plate 7 of 8
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Revised: Photomap 3
Checked:

ELEVATION (FEET NGVD)

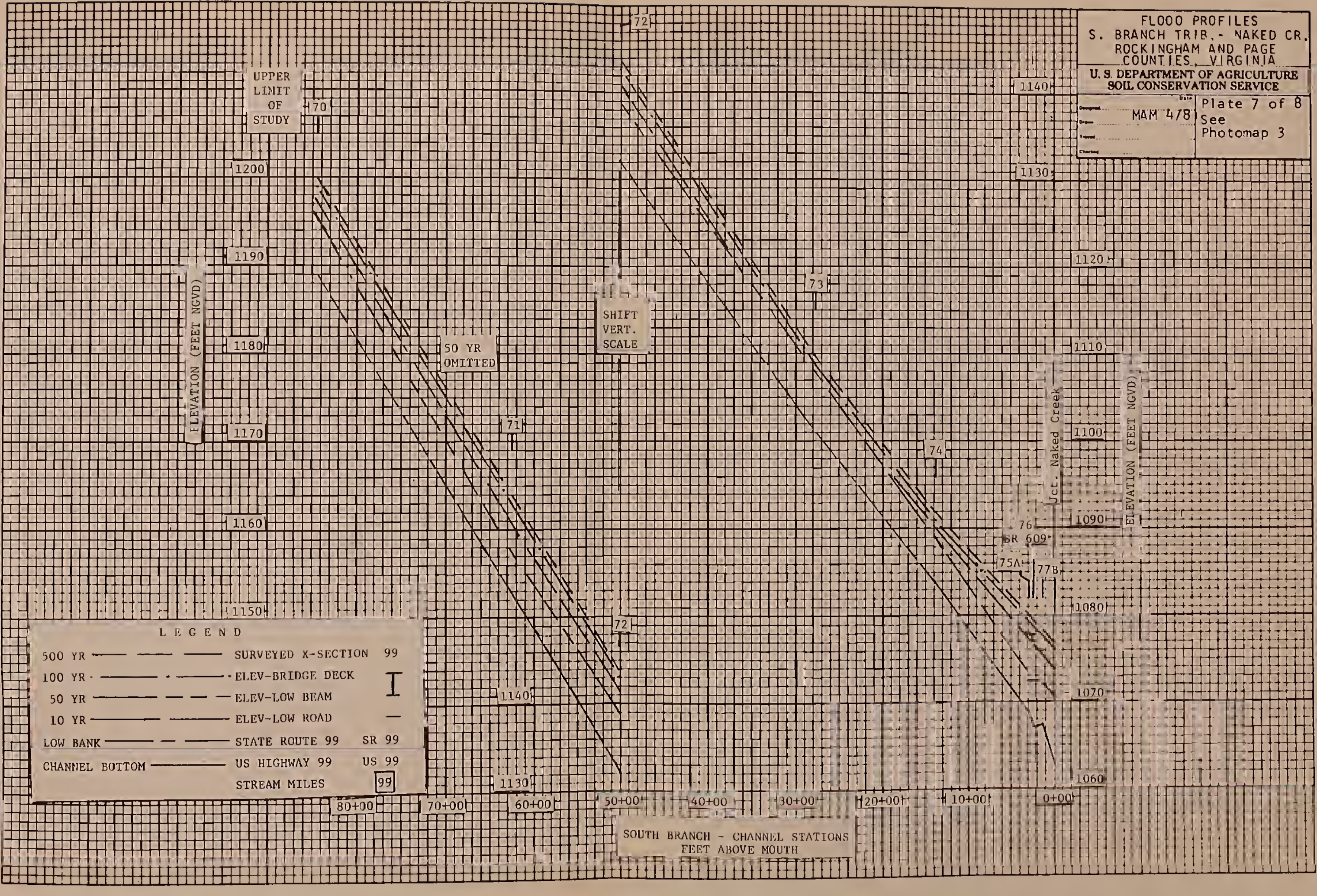
ELEVATION (FEET NGVD)

- LEGEND
- 500 YR ——— SURVEYED X-SECTION 99
 - 100 YR - - - - - ELEV-BRIDGE DECK I
 - 50 YR ——— ELEV-LOW BEAM
 - 10 YR ——— ELEV-LOW ROAD —
 - LOW BANK ——— STATE ROUTE 99 SR 99
 - CHANNEL BOTTOM ——— US HIGHWAY 99 US 99
 - STREAM MILES 99

SHIFT
VERT.
SCALE

50 YR
OMITTED

SOUTH BRANCH - CHANNEL STATIONS
FEET ABOVE MOUTH

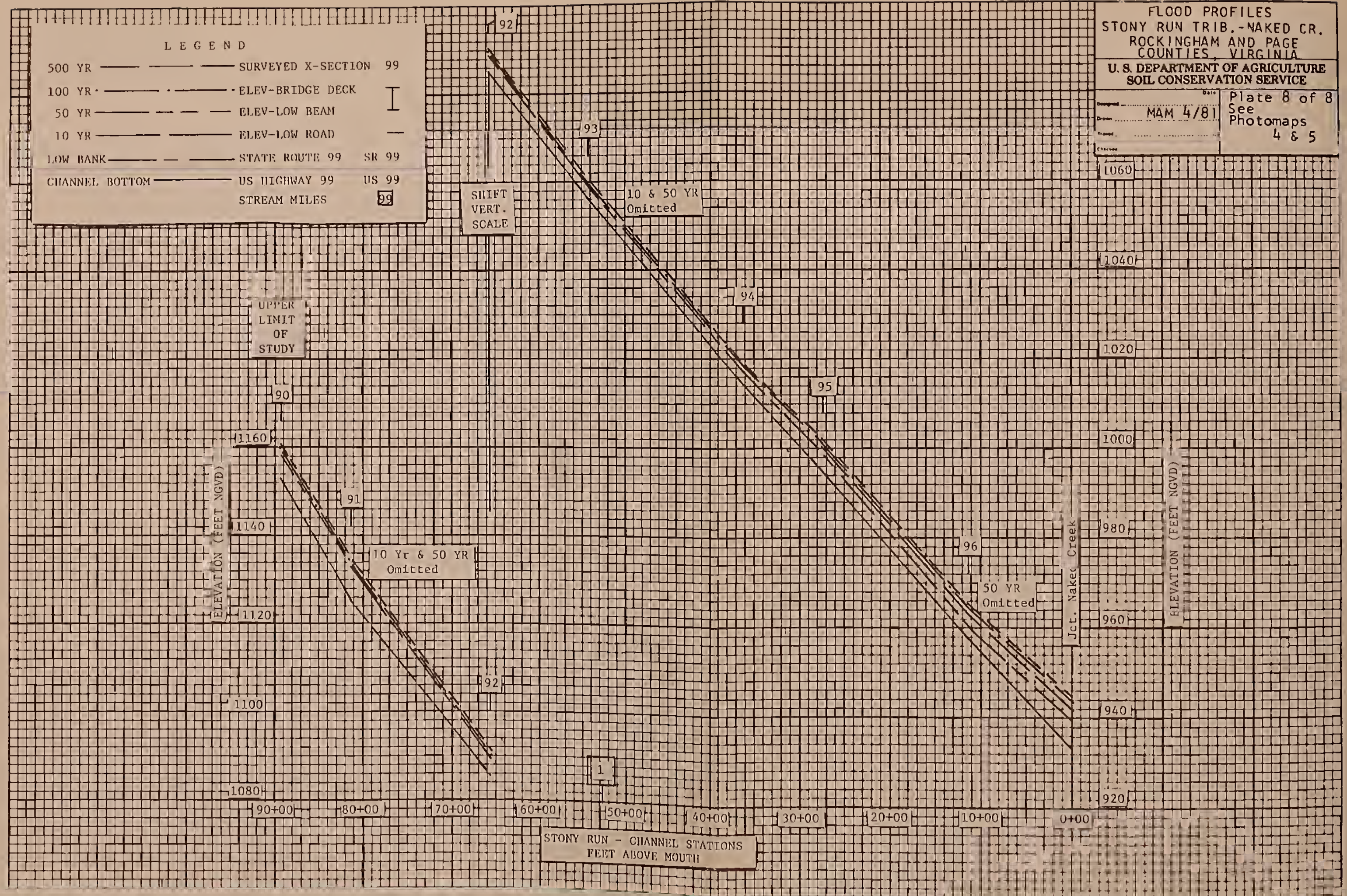


FLOOD PROFILES
 STONY RUN TRIB.-NAKED CR.
 ROCKINGHAM AND PAGE
 COUNTIES, VIRGINIA
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Plate 8 of 8
 See
 Photomaps
 4 & 5

Date
 MAM 4/81
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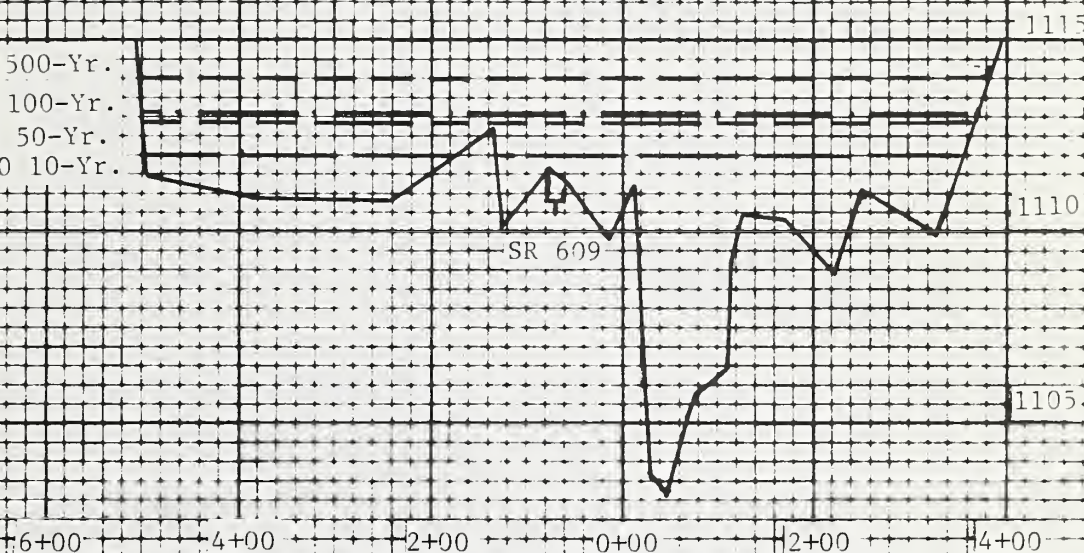
- LEGEND
- 500 YR ——— SURVEYED X-SECTION 99
 - 100 YR - - - - - ELEV-BRIDGE DECK
 - 50 YR ——— ELEV-LOW BEAM
 - 10 YR ——— ELEV-LOW ROAD
 - LOW BANK ——— STATE ROUTE 99 SR 99
 - CHANNEL BOTTOM ——— US HIGHWAY 99 US 99
 - STREAM MILES 99



TYPICAL CROSS SECTIONS
 NAKED CREEK
 PAGE AND ROCKINGHAM COUNTIES,
 VIRGINIA
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

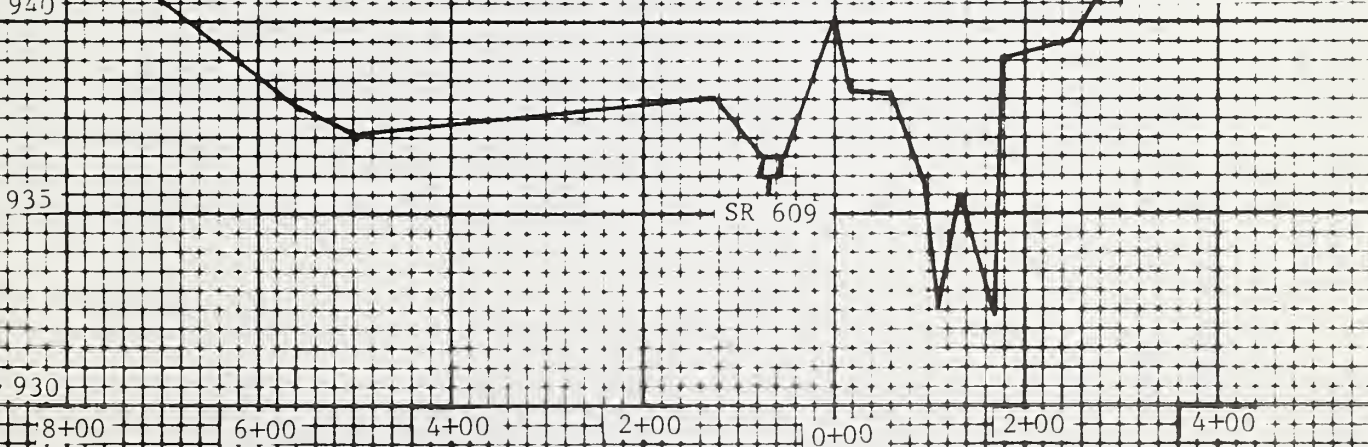
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1114.0 500-Yr.
 1113.1 100-Yr.
 1112.9 50-Yr.
 1112.0 10-Yr.



Cross Section 39

945
 944.0 500 Yr.
 943.0 100 Yr.
 942.5 50 Yr.
 941.1 10 Yr.
 940
 935
 930



Cross Section 56

Table NC-1
Frequency-discharge-elevations, Naked Creek
South Fork Shenandoah River Tributaries, Rockingham and Page Counties, Virginia

X-sects	Map	Photo	Profile	10 Year			25 Year			50 Year			100 Year			500 Year		
				No.	Plate	Area ACC D.A.	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)
NC20A	1			1		8.28	3550	1385.3	4790	1386.8	5720	1387.1	6700	1387.7	9150	1388.9		
NC21R	1			1		2.7	State Route 759 Low Road 1383.4 Low Steel 1381.6 Bridge deck 1383.4											
NC22B	1			1		8.29	3560	1381.9	4800	1382.3	5730	1382.8	6710	1383.0	9160	1383.9		
NC23A	1			1		8.65	3590	1344.2	4850	1344.8	5790	1345.0	6800	1345.6	9240	1346.6		
NC24R	1			1		2.7	State Route 759 Low Road 1338.1 Low Steel 1340.1 Bridge deck 1342.1											
NC25B	1			1		8.71	3600	1340.5	4860	1341.0	5800	1341.4	6820	1341.9	9250	1342.7		
NC26	1			1		8.78	3650	1304.0	4880	1304.7	5810	1305.0	6900	1305.7	9260	1306.9		
NC27A	1			1		9.95	3800	1286.4	5100	1287.4	6100	1287.8	7200	1288.0	9800	1288.7		
NC28R	1			1		2.7	State Route 759 Low Road 1279.8 Low Steel 1284.5 Bridge deck 1286.6											
NC29B	1			1		10.06	3820	1280.1	5170	1280.9	6180	1281.0	7220	1281.4	9870	1282.3		
NC30	1			1		10.15	3840	1258.3	5180	1259.0	6190	1259.6	7230	1260.0	9880	1260.9		
JCT.						18.57		1241.0		1241.5		1242.0		1242.3		1243.6		
NC31	2			1		18.62	6800	1240.7	8910	1241.1	10700	1241.7	12650	1242.0	17000	1243.0		
NC32A	2			1		18.65	6810	1234.8	8950	1235.1	10800	1235.7	12750	1236.0	17100	1237.0		
NC33R	2			1		2.7	State Route 759 Low Road 1230.0 Low Steel 1230.8 Bridge Deck 1232.5											
NC34B	2			1&2		19.25	6820	1232.0	9180	1232.6	10900	1232.9	13000	1233.0	17400	1233.9		
NC35	2			2		19.60	7010	1212.1	9440	1213.0	11270	1213.8	13200	1214.1	17800	1214.9		
NC36	2			2		20.02	7210	1185.2	9710	1186.2	11640	1187.0	13610	1187.8	18680	1189.4		
NC37	2			2		20.69	7250	1163.8	9780	1164.6	11730	1165.0	13710	1165.7	18880	1167.0		
NC38	2			2		20.99	7290	1134.0	9850	1135.0	11820	1135.8	13810	1136.4	19000	1137.9		
NC39	2			2&3		21.26	7330	1112.0	9920	1112.5	11910	1112.9	13910	1113.1	19120	1114.0		
NC40	3			3		21.34	7380	1098.5	10000	1099.2	11990	1099.8	14010	1100.2	19270	1101.1		
JCT.						31.47		1073.9		1074.9		1075.4		1076.1		1076.9		
NC41	3			3		31.48	11000	1072.6	15000	1073.5	18100	1074.2	21000	1075.0	29000	1075.7		
NC42	3			3		31.96	11200	1057.3	15200	1058.0	18500	1058.2	21400	1058.7	29100	1059.4		
NC43A	3			3		34.13	12200	1037.3	16500	1038.0	20000	1038.2	23100	1038.7	31500	1039.3		
NC44R	3			3		2.7	State Route 604 Low Road 1033.2 Low Steel 1032.5 Bridge Deck 1034.9											
NC45B	3			3		34.18	12300	1036.3	16550	1036.9	20100	1037.1	23200	1037.7	31600	1038.3		
NC46	3			3		34.59	12480	1018.7	16840	1019.0	20140	1019.3	23520	1019.7	32310	1020.4		
NC47A	4			3		35.69	12640	1004.5	17110	1005.3	10460	1005.9	23900	1006.4	32830	1007.1		
NC48R	4			3		2.7	State Route 607 Low Road 999.70 Low Steel 1004.60 Bridge deck 1005.8											
NC49B	4			3&4		36.34	12800	1002.5	17380	1003.3	20790	1004.0	24280	1004.7	33360	1005.7		

Table NC-1 Frequency-discharge-elevations, Naked Creek
South Fork Shenandoah River Tributaries, Rockingham and Page Counties, Virginia

X-sects	Map	Photo	Profile		10 Year		25 Year		50 Year		100 Year		500 Year	
			Plate	Area ACC D.A.	Disch	Elev	Disch	Elev	Disch	Elev	Disch	Elev	Disch	Elev
No.	No.	No.	No.	sq.mi	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)	(cfs)	(ft)
NC50	4	4	4	37.94	12960	985.7	17650	986.3	21110	987.0	24660	987.7	33880	988.7
NC51	4	4	4	38.14	13120	974.3	17920	975.0	21430	975.8	25040	976.0	34400	976.9
NC52	4	4	4	38.95	13280	958.9	18200	959.7	21750	960.0	25420	960.5	34920	961.1
NC53A	4	4	4	39.64	13620	945.9	18450	946.6	22080	947.0	25800	947.7	35450	948.9
NC54R	4	4	4	2.7	State Route 603 Low Road 940.7 Low Steel 942.9 Bridge Deck 944.7									
NC55B	4	4	4	39.66	13620	944.8	18450	945.2	22080	945.9	25800	946.1	35450	947.0
JCT.				43.82		941.6		942.2		942.8		943.2		944.1
NC56	4	4	4	43.84	14200	941.1	19800	942.0	23500	942.5	27500	943.0	37500	944.0
NC57	4	4	4	44.04	14220	935.6	19880	936.4	23680	937.0	27700	937.9	37940	938.9
NC58A	4	4	4	44.62	14640	918.0	19960	919.6	23860	920.9	27890	921.9	38370	923.4
NC59R	4	4	4	2.7	State Route 340 Low Road 918.5 Low Steel 917.6 Bridge Deck 921.9									
NC60B	4	4	4	44.83	14860	915.2	20050	916.2	24030	917.1	28090	918.0	38810	919.1
				44.83										

Table NC-1 Frequency-discharge-elevations, Stony Run
South Fork Shenandoah River Tributaries, Rockingham and Page Counties, Virginia

X-sects	Photo	Profile		10 Year			25 Year			50 Year			100 Year			500 Year		
		Map	Plate	Area ACC D.A. sq.mi	No.	Upper Limit of Study			Upper Limit of Study			Upper Limit of Study			Upper Limit of Study			
						Disch	Elev	(ft)	(cfs)	Disch	Elev	(ft)	(cfs)	Disch	Elev	(ft)	(cfs)	Disch
NCSR90	5		8	3.42		1780	1159.3	2430	1159.8	2920	1160.0	3420	1160.2	4680	1160.9	1160.9	4680	1160.9
NCSR91	5		8	3.48		1790	1133.0	2440	1133.1	2930	1133.3	3430	1133.5	4690	1133.8	1133.8	4690	1133.8
NCSR92	5		8	3.56		1800	1089.3	2450	1089.8	2940	1089.9	3440	1090.0	4700	1090.5	1090.5	4700	1090.5
NCSR93	5		8	3.72		1810	1059.2	2460	1059.6	2950	1059.7	3450	1059.8	4710	1060.2	1060.2	4710	1060.2
NCSR94	5		8	3.88		1820	1018.2	2470	1018.7	2960	1018.9	3460	1019.0	4720	1019.3	1019.3	4720	1019.3
NCSR95	4		8	3.99		1830	1001.0	2480	1001.2	2970	1001.4	3470	1001.8	4730	1002.1	1002.1	4730	1002.1
NCSR96	4		8	4.10		1840	963.1	2490	964.0	2980	964.2	3480	964.8	4740	965.6	965.6	4740	965.6
NCSR JCT.4	4		8	4.10		-	941.5	-	942.2	-	942.7	-	943.2	-	944.2	944.2	-	944.2
Upper Limit of Study																		
West Branch																		
NCWB80	1		5	4.43		1990	1562.7	2700	1563.4	3290	1563.9	3850	1564.0	5390	1564.7	1564.7	5390	1564.7
NCWB81	1		5	4.90		2100	1487.0	2900	1487.6	3550	1488.0	4200	1488.2	5800	1489.1	1489.1	5800	1489.1
NCWB82	1		5	6.51		2620	1434.2	3620	1435.4	4390	1435.9	5200	1436.1	7200	1437.2	1437.2	7200	1437.2
NCWB83	1		5	7.23		2920	1407.9	4000	1408.6	4870	1409.0	5650	1409.4	7750	1410.5	1410.5	7750	1410.5
NCWB84	1		6&5	7.39		2930	1389.0	4040	1390.0	4880	1390.6	5740	1391.0	7950	1392.2	1392.2	7950	1392.2
NCWB85	2		6	7.94		3010	1339.0	4150	1340.0	5020	1340.7	5900	1341.0	8190	1342.2	1342.2	8190	1342.2
NCWB86	2		6	8.02		3090	1322.0	4260	1324.0	5160	1324.2	6060	1325.0	8430	1326.2	1326.2	8430	1326.2
NCWB87A	2		6	8.39		3170	1248.9	4370	1249.5	5300	1249.9	6220	1250.0	8670	1251.0	1251.0	8670	1251.0
NCWB88	2		6	2.7		State Route 759 Low Road			1246.4	Low Steel			1246.9	Bridge Deck			1248.2	
NCWB89B	2		6	8.41		3250	1246.7	4480	1247.0	5430	1247.2	6390	1247.7	8900	1248.2	1248.2	8900	1248.2
NCWB Jct 2	2		6	8.41		-	1241.1	-	1241.3	-	1241.6	-	1242.5	-	1243.5	1243.5	-	1243.5

Table NC-1 Frequency-discharge-elevations, South Branch
South Fork Shenandoah River Tributaries, Rockingham and Page Counties, Virginia

X-sects	Map	Photo	Profile		10 Year			25 Year			50 Year			100 Year			500 Year		
			No.	Plate	Area ACC D.A.	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)	Disch (cfs)	Elev (ft)		
NCSB70			7		9.09	4650	1197.0	6180	1197.7	7300	1198.2	8440	1199.0	11340	1200.0				
NCSB71	3		7		9.42	4640	1161.0	6170	1161.9	7290	1162.3	8430	1163.0	11330	1164.0				
NCSB72	3		7		9.64	4630	1141.4	6160	1142.0	7280	1142.4	8420	1143.0	11320	1143.9				
NCSB73	3		7		9.84	4620	1107.3	6150	1108.0	7270	1108.5	8410	1109.0	11310	1109.9				
NCSB74	3		7		9.91	4600	1090.0	6130	1090.5	7240	1090.9	8380	1091.0	11260	1091.9				
NCSB75A	3		7		9.95	4590	1076.2	6100	1077.0	7210	1077.4	8340	1078.0	11220	1078.9				
NCSB76R	3		7		2.7	State Route 609 Low Road 1072.3 Low Steel 1075.9 Bridge Deck 1077.6													
NCSB77B	3		7		9.96	4580	1074.9	6070	1075.4	7180	1075.8	8310	1076.0	11170	1077.0				

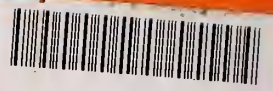
Table NC-2

<u>B.M.</u>	<u>Photo Map No.</u>	<u>Naked Creek</u>	
		<u>Description of Elevations Reference Marks</u>	
46	5	SCS TBM - A SCS disk in base Power Pole 14888 approximately 40 feet southeast of bridge over Stony Run on State Route 673. Elevation 1133.74	
105 MLS	1	USC&GS - A standard tablet stamped "105 MLS 1963 1569" in top of a large rock outcrop 74 feet northeast of a ford crossing of west fork of Naked Creek near end of State Route 607. 35 feet east of stream and 22 feet northwest of Road 607. Elevation 1569.22	
15	1	SCS TBM - A square is chiseled on the downstream northwest abutment of bridge over Naked Creek at X-section 21 on State Route 759. Elevation 1383.91	
10	2	SCS TBM - A square is chiseled on the downstream northwest abutment of bridge over west Branch of Naked Creek on State Route 759. Elevation 1249.00	
TT30	4	USC&GS - A bronze tablet is embedded in concrete on the upstream north end of bridge over Naked Creek on Highway 340 at Verbena. Elevation 921.50	
33	4	SCS TBM - A SCS disk in base of Power Pole No. ME 12100 in front of a large white dwelling 150 south of a concrete low water bridge over Naked Creek near X-section 51. Elevation 976.66	
30	3	SCS TBM - A square chiseled on the upstream south abutment of bridge over Naked Creek on Highway 604 and Junction with Highway 609. Elevation 1035.57	
27	2	SCS TBM - A SCS disk base of Power Pole 250/5 south across State Route 609 from Naked Creek Church. Elevation 1098.94	
104 MLS	2	USC&GS - A standard tablet stamped "104 MLS 1963 1233" on the upstream north end of concrete abutment of bridge at Jollet over east branch of Naked Creek. Elevation 1232.64	
103 MLS	3	USC&GS - A standard tablet stamped "103 MLS 1963 1077" on the upstream north east concete abutment of bridge over south branch of Naked Creek at Junction of State Route 759 & 606. Elevation 1077.29.	

Note: Elevation in feet above National Geodetic Vertical Datum of 1929.



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